Why Healthcare Will Be The Industry That Benefits The Most From AI

Scaling the (Seemingly) Unscalable

Julie Yoo
General Partner, Andreessen Horowitz (a16z)

Agenda

Why healthcare will be the industry that benefits the most from AI

Bottoms-up adoption of tech (versus all previous eras of healthtech adoption)

Enablers (picks and shovels for incumbents) vs Challengers (direct disruptors)

AI as a New Site of Care

THE WALL STREET JOURNAL.

Why Software Is Eating The World

By Marc Andreessen
August 20, 2011

SAVE | PRINT | TEXT

This week, Hewlett-Packard (where I am on the board) announced that it is exploring jettisoning its struggling PC business in favor of investing more heavily in software, where it sees better potential for growth. Meanwhile, Google plans to buy up the cellphone handset

> "
>
> Anything that can be done by software, will be done by software.
>
> Thus, every company will become a software company.
>
> And the most valuable companies will use software as their competitive advantage.

Software Ate the World...

Top 10 companies by market cap ($B)

Not only more, but bigger

In 2011

ExxonMobil	ExxonMobil	$314
Microsoft	Microsoft	$260
Apple	Apple	$209
WAL-MART	Walmart	$209
Berkshire Hathaway Inc.	Berkshire Hathaway	$201
General Electric	General Electric	$196
P&G	Procter & Gamble	$185
Bank of America	Bank of America	$180
Google	Google	$179
JP Morgan Chase & Co.	JP Morgan Chase	$179

In 2021

Apple	Apple	$2,414
Microsoft	Microsoft	$2,253
Alphabet	Alphabet	$1,881
Saudi Aramco	Saudi Aramco	$1,865
Amazon.com	Amazon	$1,753
Facebook	Facebook	$1,028
Tesla	Tesla	$760
Berkshire Hathaway Inc.	Berkshire Hathaway	$626
TSMC	TSMC	$611
Tencent	Tencent	$569

...And AI Is Eating Software...

Top 10 companies by market cap ($B)

Even bigger

In 2011

ExxonMobil	ExxonMobil	$314
Microsoft	Microsoft	$260
	Apple	$209
WAL-MART	Walmart	$209
Berkshire Hathaway Inc.	Berkshire Hathaway	$201
GE	General Electric	$196
P&G	Procter & Gamble	$185
Bank of America	Bank of America	$180
Google	Google	$179
JPMorgan Chase & Co.	JP Morgan Chase	$179

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Berkshire Hathaway Inc.	Berkshire Hathaway	$626
tsmc	TSMC	$611
Tencent	Tencent	$569

In 2025

	NVidia	$4,151
Microsoft	Microsoft	$3,740
	Apple	$3,131
a	Amazon	$2,373
G	Alphabet (Google)	$2,232
∞	Meta (Facebook)	1,766
	Saudi Aramco	$1,605
BROADCOM	Broadcom	$1,305
tsmc	TSMC	$1,220
T	Tesla	$1,025

As of July 15, 2025

The Biggest Company in the World

Posted November 11, 2022

We think the biggest company in the world will be a consumer health tech company.

This may sound crazy to some, but why shouldn't this be true? Four of the top five biggest companies in the world are consumer companies, and healthcare is one of the nation's biggest industries.

In fact, those massive consumer companies—Google, Apple, Facebook, Amazon (GAFA, for short)—are all working to move into healthcare because they realize the size of the opportunity: a $4 trillion American industry that makes up 20% of US GDP (and growing). This is five times the size of the advertising industry *globally*, which makes up almost all of Google and Facebook's revenue, and part of Apple and Amazon's. But healthcare is complex and not GAFA's center of gravity. They may make acquisitions on the margins, but we don't expect any of them to win the race to own healthcare.

On the other hand, the world's biggest healthcare company (the 8th biggest company in the world), UnitedHealth Group (UHG), is not a tech company and is also seriously lacking in the consumer engagement department. While they're

The AI Leapfrog Opportunity in Healthcare

Hire AI Staff

Manual workflows

Train staff to use workflow software

"AI Super Staffing"
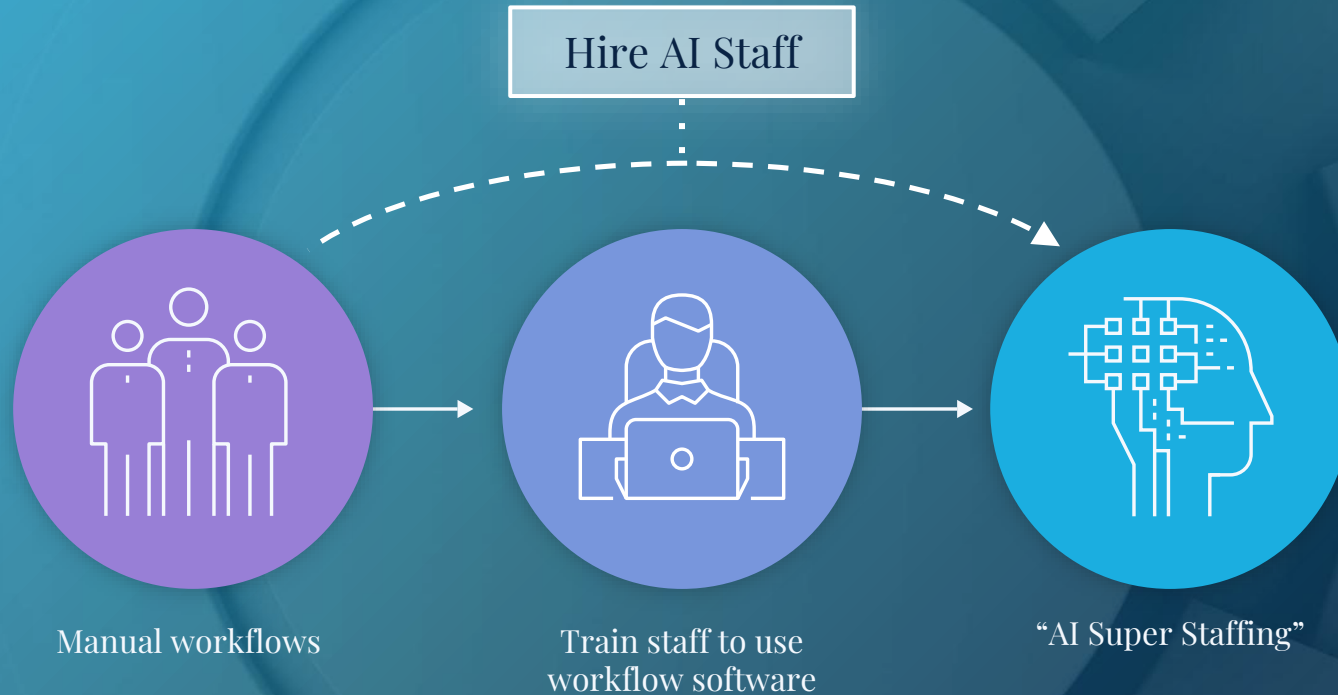
Healthcare's historical lag in adoption of "middleware" software workflow products can flip from liability to asset

Why Healthcare Will Be the Industry That Benefits the Most from AI

Foundation of Established Regulatory Frameworks

Growth of AI Medical Devices Authorized by the FDA, 1995–2024
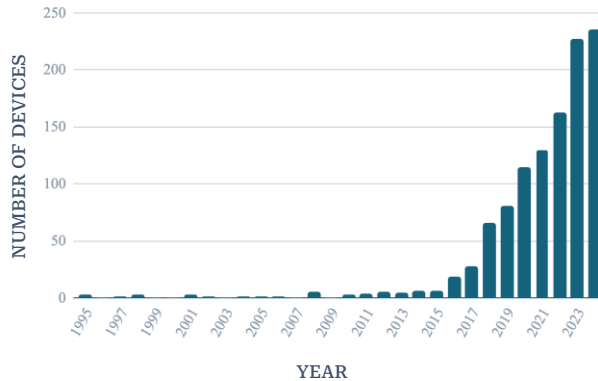
The Size of the Prize: Labor Budgets vs IT Budgets
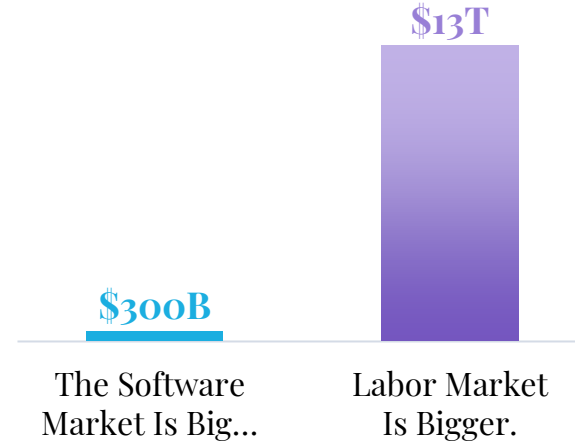
$300B

The Software Market Is Big...

$13T

Labor Market Is Bigger.

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Speed of Organic Adoption

Current rates of adoption of **provider-facing AI tools** are **unprecedented** relative to prior, more "inorganic" tech adoption waves in healthcare

No Longer A Mythical Beast: Competitive Market-Driven Adoption of Healthtech Products

JULIE YOO
FEB 04, 2025

♡ 15   ↻   Share   ...

Most recent eras of tech adoption in healthcare have been propelled either by some top-down government mandate - both carrots (e.g. Meaningful Use driving EHR adoption) and sticks (e.g. information blocking penalties driven by the 21st Century Cures Act) - or an unexpected crisis (e.g. telehealth and RPM during the COVID-19 pandemic). In this sense, the vast majority of tech adoption in healthcare has been inorganic and "unnatural", versus driven by organic market forces, real competition, and actual supply and demand curve dynamics.

That makes the current wave of generative AI product adoption that we've observed since ~2023 unprecedented for two reasons: 1) it is completely organic and driven by genuine competition versus any top-down regulatory driver or other such manufactured intervention, and 2) the slope of the adoption and revenue curves of these products is steeper than we've seen in any other recent healthcare technology wave.

"No Longer A Mythical Beast: Competitive Market-Driven Adoption of Healthtech Products", Feb 4, 2025, https://healthtechbuilders.substack.com/p/no-longer-a-mythical-beast-market

Takeaways

- Most previous tech adoption cycles required an artificial intervention of some sort (e.g. regulatory carrots or sticks, FDA authorization, payment policy change, pandemic, etc)

- Recent provider AI tool (e.g. scribes, RCM automation agents, voice agents for scheduling) adoption has been a) organic and b) "bottoms-up"

- Adoption rates are unprecedented – and the gap between "healthcare tech" and "non-healthcare tech" is smaller than it's ever been

- SMB clinic-facing vendors growing faster than health system-facing vendors

Digital Health Companies Are Growing Faster

Avg. Years to $100M by Founding Year Era

2001-2005	2006-2010	2011-2015	2016-2020	2021-2025
12	9.2	7.2	4.4	2.8
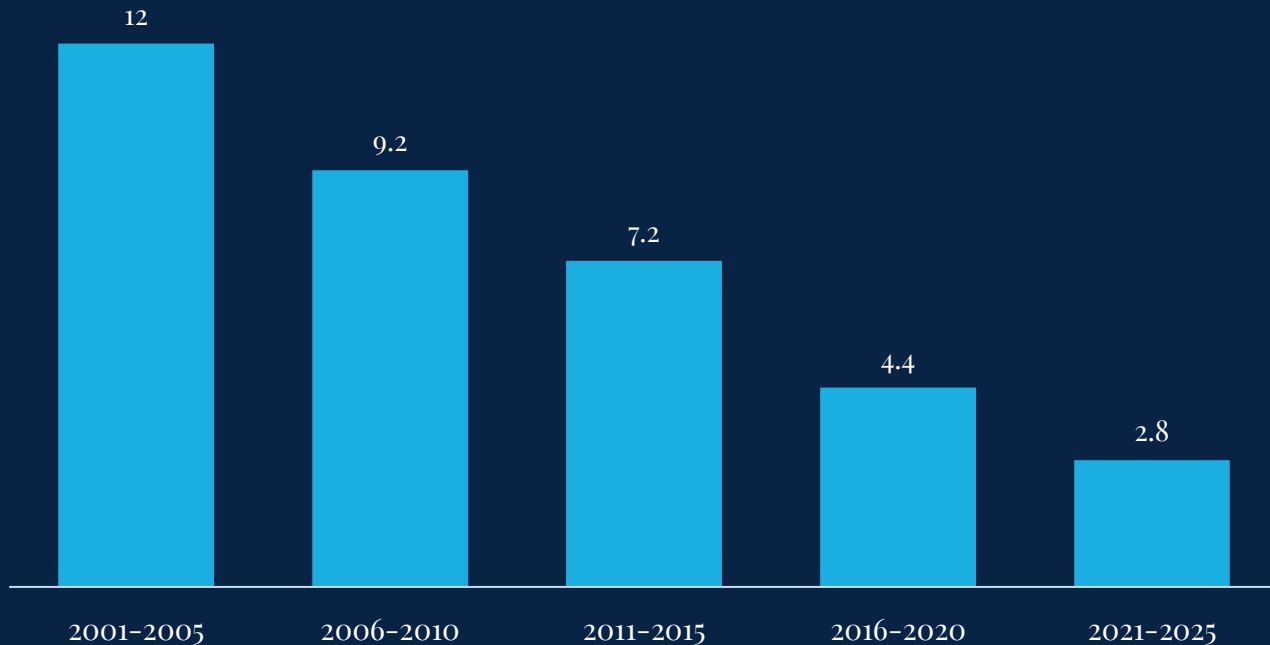
n=62; VC-backed digital health / healthtech companies from a16z investing team data set

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Enablers vs. Challengers

The presence of both was required to drive value creation over multiple decades in venture capital

Enablers = "picks and shovels" businesses that enable incumbents
Challengers = full-stack services businesses that compete against incumbents

Share of VC-backed companies in top 10 by market cap

	Number of VC-backed companies in top-10 by market cap		Market cap share of VC-backed companies among top-10 by market cap, %
	2	**7**	**20%**	**85%**
	2010	2025	2010	2025
	R²= 0.90		R²= 0.95

The figure shows the number of VC-backed companies in top 10 by market capitalization (red) and market cap share of VC-backed companies among top 10 by market cap (blue) as of 12/31/2024. "VC-backed company" means that the company was funded by institutional or corporate venture capital funds when it was privately owned prior to its public listing. Dotted line shows linear trendline. The linear trendline is based on the method of least squares, which minimizes the sum of the squared differences between the actual data points and the predicted values on the trendline. The R^2 score for the linear trendline of a number of VC-backed companies is 0.90 and the R^2 score for the linear trendline of market capitalization share of VC-backed companies is 0.95.

Source: UNICORN REPORT by Ilya Strebulaev, Stanford Graduate School of Business (01/2025)

@ X @ IlyaSTREBULAEV

Enablers

stripe · workday · coinbase · Twitter · Facebook · salesforce · NVIDIA · snowflake · Google · databricks

Challengers

airbnb · Spotify · NETFLIX · instacart · robinhood · amazon · Uber · TESLA · SPACEX

VC-Backed Healthtech Enablers vs Challengers

Enablers

ABRIDGE | AKASA | commure

cedar | KYRUUS HEALTH | doximity | ™TEMPUS

PayZen | Hippocratic AI — Do No Harm — | Headway

Challengers

Devoted | headspace | Function

Capital Rx | prenuvo | hims & hers

Hinge Health | omada | lyra

VC-Backed Healthtech Enablers vs Challengers

By deal volume

Total VC-Backed Healthtech Deals by Type/Era

- Challenger
- Enabler

Era	Challenger	Enabler
2010-14	51	161
2015-19	374	869
2020-24	911	1,412
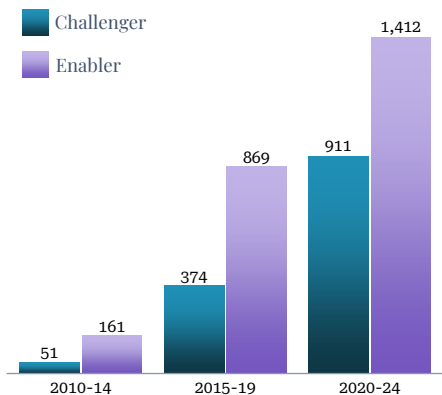
Deal Volume Ratio Challengers:Enablers

Era	Ratio
2010-14	0.32
2015-19	0.43
2020-24	0.65
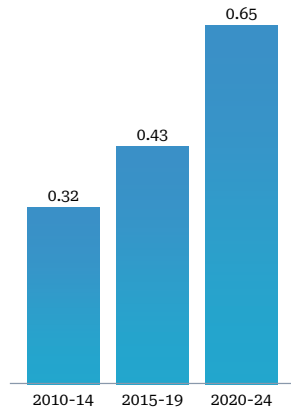
By total raised

Total Healthtech VC Raised by Type/Era (in $)

- Challenger
- Enabler

Era	Challenger	Enabler
2010-14	1,149.2	2,738.5
2015-19	12,369.1	15,962.9
2020-24	35,903.7	39,687.1
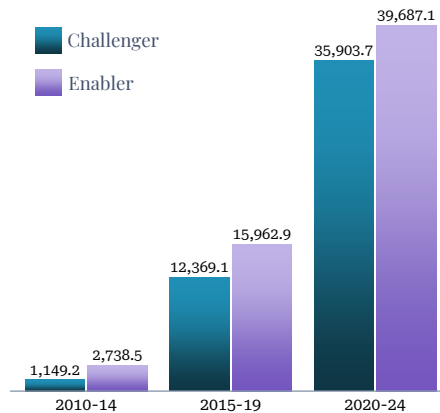
Deal Dollars Ratio Challengers:Enablers
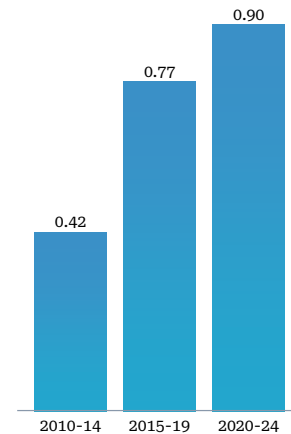
Era	Ratio
2010-14	0.42
2015-19	0.77
2020-24	0.90

Today's Scaled Healthtech Companies Look Different

	Gross Margin	Speed to National Scale	PCP Equivalent Panel Size
Traditional	10–20%	10+ Years (If Ever), Largely Inorganic	500–1500
Tech-Native	60–80%	4-6 Years, Largely Organic	5000+

Will traditional sources of competitive advantage
(e.g. scale, local market dominance, supply lock-up) start to erode?

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Skeuomorphic vs Native Forms of New Technologies

iBooks was supposed to look like an actual bookshelf.

Steve Jobs loved skeuomorphism. He thought it made software easier for normal people to use — more approachable and immediately familiar.

The first generation of tools in a new technology paradigm tend to to be skeuomorphic and mirror their offline counterparts.

But true transformation occurs when "digital native" forms of those new technologies emerge...

Skeuomorphic vs Native Forms of New Technologies
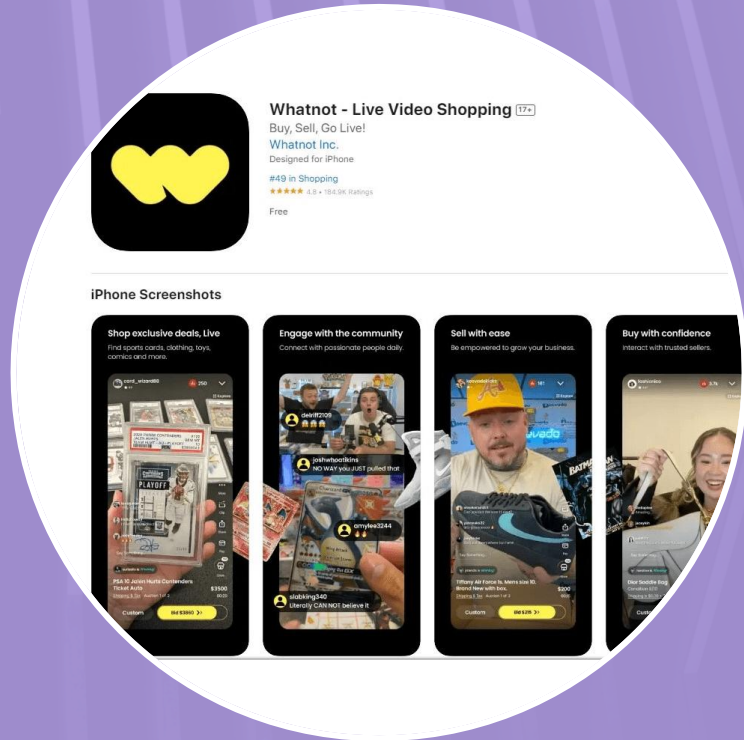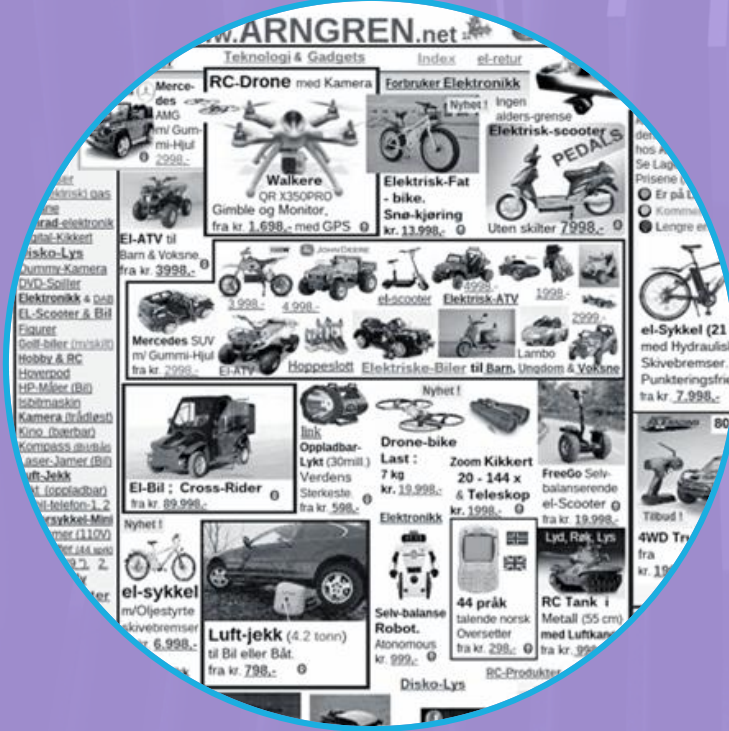
Skeuomorphic vs Native Forms of New Technologies

Skeuomorphic vs Native Forms of New Technologies

The Unbundling of ChatGPT

Julie Yoo ✔ (a16z)
@julesyoo

with a h/t to @dhaber's OG "unbundling of Craigslist" map, we're already seeing the "unbundling of ChatGPT" based on the emergent behaviors of how consumers are using gen AI chatbots, including several healthcare use cases... the length of the pole between generalist chat and a durable/viable distribution motion, business model, regulatory compliance strategy, and care delivery workflow integration is still long in most cases, but the generalist foundation models are upping the game on what's possible and what consumers will increasingly expect in their healthcare user experiences.

How People Are Using Gen AI

Have people found ways for generative AI to help lighten their workloads, increase their productivity, or think through problems in new ways? To understand how individuals are using the technology, researchers mined web forums like Quora and Reddit, filtering through tens of thousands of posts to identify 100 different use cases, which they then organized into six themes.

Themes
- PERSONAL AND PROFESSIONAL SUPPORT
- CONTENT CREATION AND EDITING
- LEARNING AND EDUCATION
- TECHNICAL ASSISTANCE AND TROUBLESHOOTING
- CREATIVITY AND RECREATION
- RESEARCH, ANALYSIS, AND DECISION-MAKING

Use cases — *Indicates a new use case*

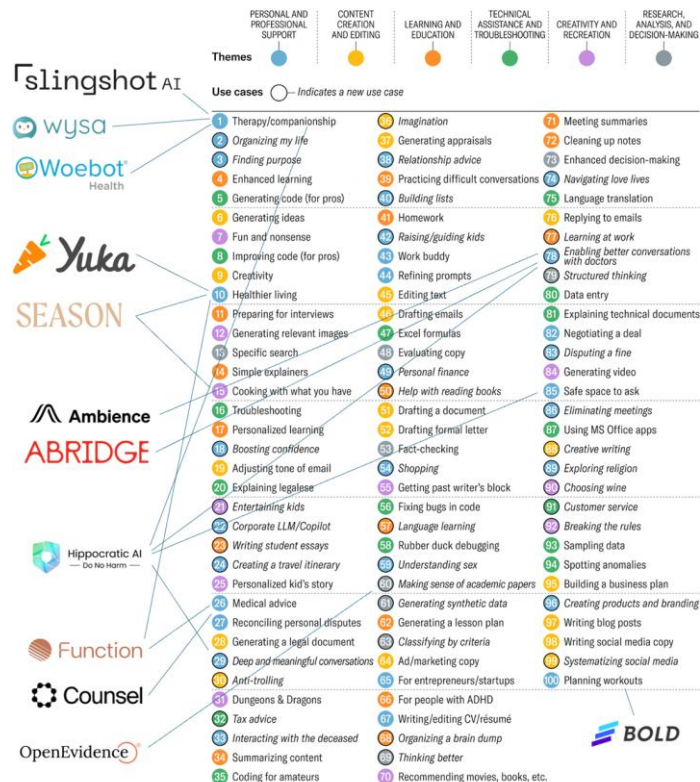| #	Use case	#	Use case	#	Use case
1	Therapy/companionship	36	Imagination	71	Meeting summaries
2	Organizing my life	37	Generating appraisals	72	Cleaning up notes
3	Finding purpose	38	Relationship advice	73	Enhanced decision-making
4	Enhanced learning	39	Practicing difficult conversations	74	Navigating love lives
5	Generating code (for pros)	40	Building lists	75	Language translation
6	Generating ideas	41	Homework	76	Replying to emails
7	Fun and nonsense	42	Raising/guiding kids	77	Learning at work
8	Improving code (for pros)	43	Work buddy	78	Enabling better conversations with doctors
9	Creativity	44	Refining prompts	79	Structured thinking
10	Healthier living	45	Editing text	80	Data entry
11	Preparing for interviews	46	Drafting emails	81	Explaining technical documents
12	Generating relevant images	47	Excel formulas	82	Negotiating a deal
13	Specific search	48	Evaluating copy	83	Disputing a fine
14	Simple explainers	49	Personal finance	84	Generating video
15	Cooking with what you have	50	Help with reading books	85	Safe space to ask
16	Troubleshooting	51	Drafting a document	86	Eliminating meetings
17	Personalized learning	52	Drafting formal letter	87	Using MS Office apps
18	Boosting confidence	53	Fact-checking	88	Creative writing
19	Adjusting tone of email	54	Shopping	89	Exploring religion
20	Explaining legalese	55	Getting past writer's block	90	Choosing wine
21	Entertaining kids	56	Fixing bugs in code	91	Customer service
22	Corporate LLM/Copilot	57	Language learning	92	Breaking the rules
23	Writing student essays	58	Rubber duck debugging	93	Sampling data
24	Creating a travel itinerary	59	Understanding sex	94	Spotting anomalies
25	Personalized kid's story	60	Making sense of academic papers	95	Building a business plan
26	Medical advice	61	Generating synthetic data	96	Creating products and branding
27	Reconciling personal disputes	62	Generating a lesson plan	97	Writing blog posts
28	Generating a legal document	63	Classifying by criteria	98	Writing social media copy
29	Deep and meaningful conversations	64	Ad/marketing copy	99	Systematizing social media
30	Anti-trolling	65	For entrepreneurs/startups	100	Planning workouts
31	Dungeons & Dragons	66	For people with ADHD		
32	Tax advice	67	Writing/editing CV/résumé		
33	Interacting with the deceased	68	Organizing a brain dump		
34	Summarizing content	69	Thinking better		
35	Coding for amateurs	70	Recommending movies, books, etc.		

HBR: "How People Are Really Using GenAI"

Logos: slingshot AI, wysa, Woebot Health, Yuka, SEASON, Ambience, ABRIDGE, Hippocratic AI (Do No Harm), Function, Counsel, OpenEvidence, BOLD

But Should It Be Unbundled?

The New York Times

TECHNOLOGY   June 13

They Asked an A.I. Chatbot Questions. The Answers Sent Them Spiraling.

Generative A.I. chatbots are going down conspiratorial rabbit holes and endorsing wild, mystical belief systems. For some people, conversations with the technology can deeply distort reality.

By Kashmir Hill

PRINT EDITION   Chatbots Hallucinate. They Can Make People Do It, Too. | June 15, 2025, Page BU1

"default sycophant"

Our industry needs *specialist* models
("default skeptical" vs "default sycophant")

2023 Generative AI

GPT-3

Midjourney

DALL·E

Specialist AI

Drug design

Healthcare delivery

Complex tasks

CICERO — Diplomacy

AlphaGo — Chess

Forgiving to mistakes

Unforgiving to mistakes

Healthcare admin

NETFLIX — recommendation

Self driving cars

Simple ML/AI

Simple tasks

AI does what creatives do

AI does what technical experts do
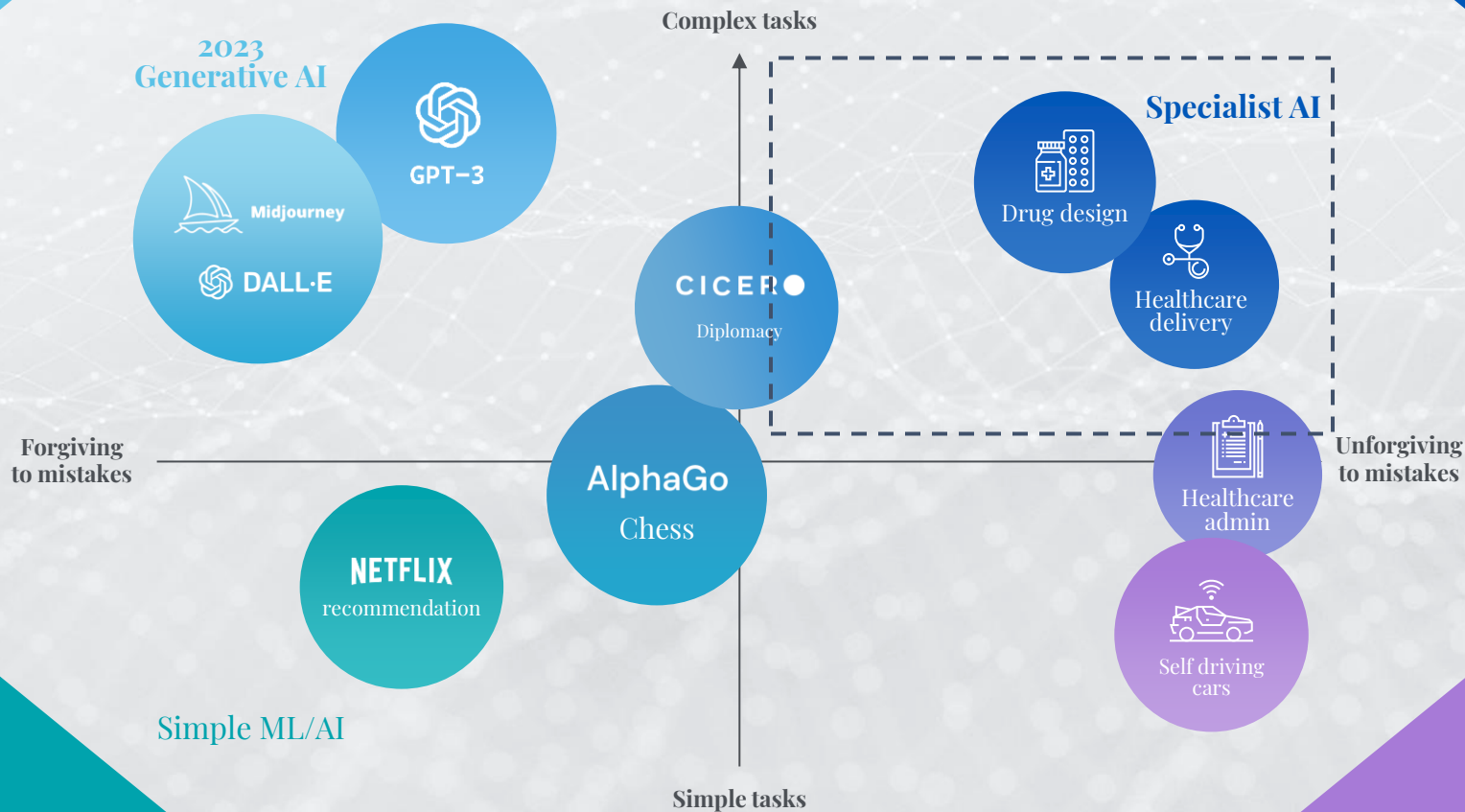
Classic machine learning

AI does what everyday people do

AI Is Creating New Sites of Care
Abundant Capacity + Infinite Patience + Pan-Specialization

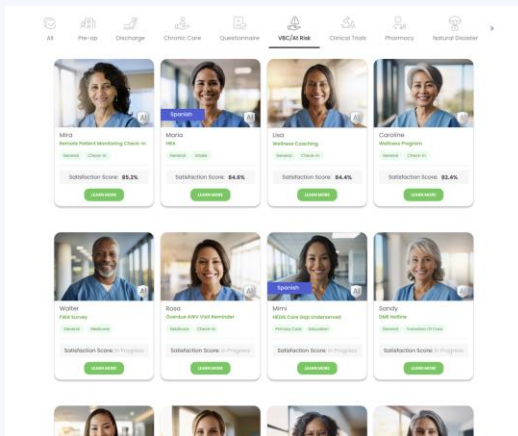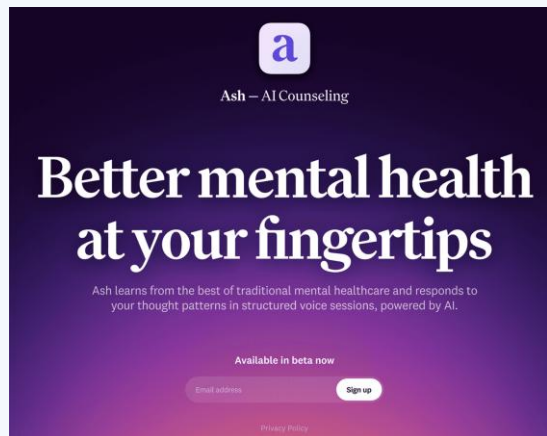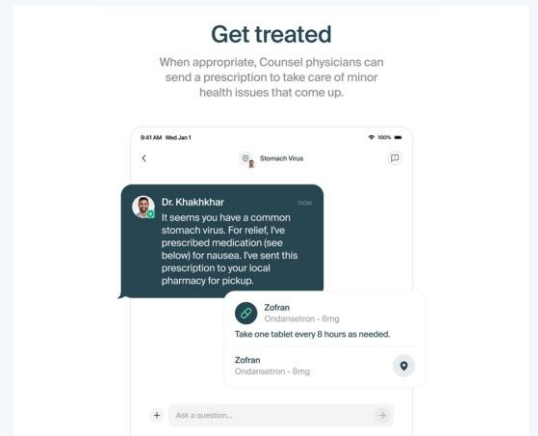| Autonomous intra-visit extenders | Autonomous therapists | 24/7 async medical advice hotline |

AMC Networks Inks Deal With AI Company Runway (Exclusive)

The 'Mad Men' and 'The Walking Dead' platform is the latest Hollywood company to sign a pact with the generative AI firm.

BY STEVEN ZEITCHIK ⊞   JUNE 4, 2025 6:00AM

But with cord-cutting long a fact of life and even far larger streamers struggling for mindshare, the company has been hit hard. In its most recent earnings report, profits at AMC Networks nearly halved to $63 million, and the company is believed to be looking for ways to produce content less expensively without suffering a drop in quality.

Still, AMC's streaming services boasts more than ten million subscribers, suggesting their content — that includes current critical hit *Dark Winds*, *Walking Dead* franchise extensions and the shows of the *Anne Rice Immortal Universe* — could be effectively monetized if costs are kept under control.

Our Industry Has a Massive Scalability Problem

100M Americans don't have a dedicated doctor

75M Americans reside in healthcare deserts

60% of Americans now have a chronic disease

150K+ healthcare professionals left the workforce in 2021-2022

The Great Unlock

Traditional Care

- ⊗ Supply-Constrained
- ⊗ Fragmented & Transactional
- ⊗ Sporadic
- ⊗ Centralized
- ⊗ Localized

Scalable Care

- Supply-Abundant ✓
- Engagement-Centric & Context-Aware ✓
- Always On ✓
- Distributed ✓
- Nationwide ✓

a16z BIO+HEALTH

Andreessen Horowitz (a16z) Bio + Health is a specialized team within a16z, comprised of ex-entrepreneurs and operators backing world-class founders who are transforming industries using technology.

a16z healthcare

PAVIDORS
- DevotedHealth
- fireflyhealth

PROVIDER ENABLERS
- Alchemy
- Ambience
- BAYESIAN HEALTH
- BOLD
- FerryHealth
- Headway
- Hippocratic AI
- honor
- LEVELS
- MEMORA HEALTH
- pearl
- pomelo care
- SEASON
- Thyme Care
- Tomorrow Health
- midstream
- Valar Labs
- waymark

HEALTHTECH INFRASTRUCTURE
- AKASA
- cedar
- Fortuna Health
- freenome
- INCREDIBLE HEALTH
- INFINITUS
- milu health
- midstream
- O.bio
- Ribbon
- THATCH
- Turquoise Health
- zus health

PROVIDERS
- Counsel
- Function
- known·well
- Marker.
- omada
- patina
- sprinter health
- Talkiatry
- Willow HEALTH

a16z life sciences

DRUG DISCOVERY & DEVELOPMENT
- Amber
- Arda THERAPEUTICS
- BigHat BIOSCIENCES
- BIOAGE
- CAMP4
- CARTOGRAPHY BIOSCIENCES
- deepcell
- DYNO THERAPEUTICS
- EARLI
- Function
- GC Therapeutics
- IDRx
- Inceptive
- insitro
- Mana
- OCTANT
- ORBITAL THERAPEUTICS
- Patch Biosciences
- REZO
- scribe THERAPEUTICS
- Tome BIOSCIENCES
- trotana therapeutics
- VICINITAS THERAPEUTICS

BIOPHARMA INFRA
- ASIMOV
- Biodock
- ELEGEN
- komodo HEALTH
- orchestra
- TOPOGRAPHY HEALTH

SYN BIO
- Apeel
- nobell
- SCIFI FOODS

a16z global AI and tech

AI INFRA
- OpenAI
- MISTRAL AI_
- World Labs
- sesame
- ssi
- …

CONSUMER TECH
- airbnb
- lyft
- instacart
- oculus
- Pinterest
- …

ENTERPRISE TECH
- databricks
- slack
- PagerDuty
- okta
- GitHub
- …

FINTECH
- affirm
- Robinhood
- Wise
- Propel
- …

AMERICAN DYNAMISM
- ANDURIL
- ASTRANIS
- flock safety
- flexport
- …

GAMES
- ROBLOX
- zynga
- SANDBOX VR
- mainframe
- …

CRYPTO
- coinbase
- WORLDCOIN
- SOLANA
- …